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In the claims:

1. (currently amended) A method for performing a radix search of a data structure stored in a computer readable medium of a computer device, wherein the data structure comprises a plurality of data structure entries grouped into a plurality of related portions, and wherein the radix search includes the step of serially accessing each one of the plurality of related portions of the data structure to obtain a radix search result, wherein the method includes the steps of comprising:

_____ selecting a reference table based on a value of a selectable parameter in a data structure entry, the reference table containing a set of data bits;

receiving base address and a key containing a set comprised of a plurality of sets of data bits;

indexing the reference table using at least one of the a subset sets of data bits in the key to obtain a reference table entry, wherein at least a subset of bits of the reference table entry is processed as either transition bits or valid bits in accordance with the selectable parameter of an associated data structure entry to provide a processed reference table entry; and

determining a result index based on at least a subset of data bits in the reference table;
and

serially indexing the data structure using one of either the base address or a combined address to determine a result index, wherein the combined address is comprised of an address provided in a result of a previous index of the data structure and the processed reference table entry.

_____ indexing a result table based on the result index to reference a result of a radix search data structure;

_____ wherein the reference table includes at least one of a valid reference table and a transition reference table.

2. (currently amended) The method of claim 1, wherein the radix search data structure comprises a radix arranged as a search tree lookup.

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3. (original) The method of claim 2, wherein the reference table comprises at least one entry in a memory.
4. (original) The method of claim 2, wherein the selectable parameter comprises a selectable bit.
5. (original) The method of claim 2, wherein determining the result index comprises computing an offset value to a pointer field.
6. (original) The method of claim 5, wherein computing the offset value comprises computing a sum of data bits having a user specified state in the subset of data bits in the reference table.
7. (original) The method of claim 6, wherein the subset of data bits in the reference table is based on a data bit position of an index to the reference table.
8. (original) The method of claim 5, wherein the pointer field comprises an address of an entry of a memory.
9. (currently amended) The method of claim 2, wherein the ~~result table~~data structure portion accessed by the result index comprises ~~at least one entry in a memory~~a data structure entry including, the at least one entry including at least one of a continue parameter, a selectable parameter, and a pointer field, the continue parameter indicating whether the result is ~~at least one entry comprises a final result of the result of the radix search tree lookup~~.
10. (original) The method of claim 2, wherein the radix search tree lookup comprises radix 4 search tree lookup.
11. (currently amended) An apparatus for performing a radix search of a data structure stored in a memory, comprising:
a key comprising a plurality of sets of bits, each set of bits associated with one search in a sequence of searches of the radix search;

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a memory device configured to store ~~a reference table, a key, and a data structure and a~~
~~reference table, the data structure comprising a plurality of data structure entries grouped as a~~
~~plurality of related portions including a result tableportion, the reference table including~~
~~the reference table configured based on a value of a selectable parameter, and a plurality~~
~~of reference table entries each comprising containing a set of data bits, the reference table entries~~
~~being processed as transition bits or valid bits according to a value of a selectable parameter of~~
~~an associated data structure entry,~~

~~the key containing a set of data bits to index the reference table using at least a subset of~~
~~data bits in the key,~~

~~the result table including a result, and~~

a processor coupled to the memory, the processor configured to perform the radix search
to obtain a result index to a result of the radix search, each search in the sequence being
performed using one of a base address or a combined address, the combined address including an
address provided in a result of a previous search and a processed reference table entry,
~~determine a result index based on at least a subset of data bits in the reference table, and to index~~
~~the result table based on the result index to reference the result of a radix search data structure,~~
~~wherein the reference table includes at least one of a valid reference table and a transition~~
~~reference table.~~

12. (currently amended) The apparatus of claim 11, wherein the plurality of portions of the radix
search data structure comprises are arranged in a a-radix search tree lookupformat.

13. (original) The apparatus of claim 12, wherein the reference table comprises at least one entry
in the memory device.

14. (original) The apparatus of claim 12, wherein the selectable parameter comprises a selectable
bit.

15. (original) The apparatus of claim 12, wherein the determination of the result index includes
computing an offset value to a pointer field.

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16. (original) The apparatus of claim 15, wherein the computation of the offset value includes computing a sum of data bits having a user specified state in the subset of data bits in the reference table.

17. (original) The apparatus of claim 16, wherein the subset of data bits in the reference table is based on a data bit position of an index to the reference table.

18. (original) The apparatus of claim 15, wherein the pointer field comprises an address of an entry of the memory device.

19. (currently amended) The apparatus of claim 12, wherein the ~~result table comprises at least one entry in a memory, the at least one entry~~ data structure entry also includes including at least one of a continue parameter, ~~a selectable parameter,~~ and a pointer field, the continue parameter indicating whether the at data structure entry includes ~~least one entry comprises~~ the result of the radix search ~~tree lookup.~~

20. (currently amended) The apparatus of claim 12, wherein the radix search ~~tree lookup~~ comprises is a radix 4 search ~~tree lookup.~~

21. (currently amended) A computer-readable medium encoded with a program for a computer for execution on a computer processing system, the program code for performing a radix search of a data structure comprised of a plurality of data structure entries grouped into a plurality of related portions, wherein the program code includes ~~comprising:~~

program code operable to select ~~selecting~~ a reference table based on a value of a selectable parameter stored in a data structure entry, the reference table containing a set of data bits;

program code operable to retrieve a base address and ~~receiving~~ a key containing ~~comprised of plurality of sets~~ ~~a set of data bits;~~

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program code operable to index indexing the reference table using at least a subset of data one of the sets of bits in the key to obtain a reference table entry, wherein at least a subset of bits of the reference table entry is processed as either transition bits or valid bits in accordance with the selectable parameter of an associated entry in the data structure to provide a processed reference table entry; and

program code operable to serially index the data structure using one of either the base address or a combined address to determine a result index, wherein the combined address is comprised of an address provided in a result of a previous index of the data structure and the processed reference table entry.

~~determining a result index based on at least a subset of data bits in the reference table;~~

and

~~indexing a result table based on the result index to reference a result of a radix search data structure,~~

~~wherein the reference table includes at least one of a valid reference table and a transition reference table.~~

22. (currently amended) The computer-readable medium of claim 21, wherein the ~~radix search data structure comprises a radix~~ is arranged as a search tree lookup.

23. (original) The computer-readable medium of claim 22, wherein the reference table comprises at least one entry in a memory.

24. (original) The computer-readable medium of claim 22, wherein the selectable parameter comprises a selectable bit.

25. (original) The computer-readable medium of claim 22, wherein determining the result index comprises computing an offset value to a pointer field.

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26. (currently amended) The computer-readable medium of claim 25, wherein computing the offset value comprises computing a sum of data bits having a user specified state in the subset of data bits in the reference table entry.

27. (original) The computer-readable medium of claim 26, wherein the subset of data bits in the reference table is based on a data bit position of an index to the reference table.

28. (original) The computer-readable medium of claim 25, wherein the pointer field comprises an address of an entry of a memory.

29. (currently amended) The computer-readable medium of claim 22, wherein the ~~result table~~ comprises at least one entry in a memory, the at least one entry including data structure entry also includes at least one of a continue parameter, ~~a selectable parameter,~~ and a pointer field, the continue parameter indicating whether ~~the at least one~~ data structure entry comprises the result of the radix search ~~tree lookup~~.

30. (currently amended) The computer-readable medium of claim 22, wherein the radix search ~~tree lookup~~ comprises a radix 4 search ~~tree lookup~~.